

What is claimed is:

1. A docking station comprising:

a housing operable to receive a portable computer; and

a liquid-filled hollow structure provided on a portion of the housing, the

5 liquid-filled hollow structure being in thermally conductive relation to the portable computer when the portable computer is docked in the docking station such that heat is transferred from the portable computer to the liquid-filled hollow structure.

2. The docking station of claim 1, wherein the liquid-filled hollow structure  
10 comprises:

an evaporator section operable to receive heat from the portable computer when the portable computer is docked in the docking section; and

a condenser section operable to dissipate the heat received from the portable computer.

15

3. The docking station of claim 2, further comprising a heat sink connected to the condenser section, the heat sink being operable to dissipate the heat received from the portable computer.

20

4. The docking station of claim 2, wherein the evaporator section is provided on an angular surface of the housing such that the condenser section is at a higher orientation than a substantial portion of the evaporator section.

5. The docking station of claim 2, wherein the liquid-filled hollow structure includes a liquid that vaporizes in the evaporator section in response to being heated by the heat transferred from the portable computer and that condenses back to the liquid in the condenser section, wherein the condensed liquid travels back to the evaporator section.

6. The docking station of claim 5, wherein the condensed liquid traveling back to the evaporator section is aided by one or more of a wicking structure in the liquid-filled hollow structure and gravity.

7. The docking station of claim 1, further comprising a heat transfer material provided between the liquid-filled hollow structure and the portable computer docked in the docking station.

8. The docking station of claim 1, further comprising a biasing structure biasing the liquid-filled hollow structure towards the portable computer when the portable computer is docked in the docking station.

9. The docking station of claim 8, wherein the biasing structure comprises:

a cam operable to force the liquid-filled hollow structure towards the portable computer; and

a lever connected to the cam, the lever controlling the cam to force the liquid-filled hollow structure towards the portable computer.

10. The docking station of claim 9, wherein the cam further comprises an oval-shaped device operable to rotated between a vertical orientation and a horizontal orientation, such that in the vertical position the oval-shaped device biases the liquid-filled hollow structure towards the portable computer and in the horizontal position the oval-shaped device does not bias the liquid-filled hollow structure towards the portable computer; and

the lever is connected to the oval-shaped device, wherein the lever is operable to be positioned to force the oval-shaped device into one of the vertical orientation and the horizontal orientation.

11. The docking station of claim 9, wherein the biasing structure further comprises a spring biasing the liquid-filled hollow structure towards the portable computer.

12. The docking station of claim 9, wherein the cam is further operable to bias the portable computer to a docked position where the portable computer is connected to ports in the docking station.

13. The docking station of claim 2, wherein a size of the evaporator section is approximately equal to a size of a bottom surface of the portable computer when docked in the docking station.

14. The docking station of claim 3, wherein the condenser section is at least as large as a surface of the heat sink contacting the condenser section.

15. The docking station of claim 2, wherein one or more of the evaporator section and the condenser section includes channels holding the liquid in the liquid-filled hollow structure.

16. The docking station of claim 15, wherein the channels in the evaporator section are proximally located to hot spots of the portable computer docked in the docking station.

17. The docking station of claim 5, wherein the evaporator section and the condenser section are connected via at least one heat pipe operable to carry the liquid and the vapor in the liquid-filled hollow structure.

18. The docking station of claim 17, further comprising a pump connected to the at least one heat pipe, the pump pumping the liquid from the condenser section to the evaporator section.

19. The docking station of claim 1, wherein the liquid-filled hollow structure comprises:

a cold plate section operable to receive heat from the portable computer

when the portable computer is docked in the docking section;

a heat exchanger section operable to dissipate the heat received from the portable computer; and

a liquid heated in the cold plate section and cooled in the heat exchanger section.

5

20. The docking station of claim 19, further comprising a pump circulating the liquid between the heat exchanger section and the cold plate section.

21. The docking station of claim 20, further comprising at least one heat pipe connecting the heat exchanger section and the cold plate section.

10

22. The docking station of claim 21, wherein the at least one heat pipe is flexible.

15

23. A docking station cooling system comprising:

a liquid-filled hollow structure including an evaporator section and a condenser section, wherein the evaporator section is in thermally conductive relation to a portable computer docked in the docking station such that heat is transferred from the portable computer to the evaporator section, and

20

a heat sink in thermally conductive relation to the condenser section to dissipate the heat transferred from the portable computer;

wherein the liquid-filled hollow structure includes a liquid that vaporizes in the evaporator section in response to being heated by the heat transferred from the

portable computer and that condenses back to the liquid in the condenser section, wherein the condensed liquid travels back to the evaporator section.

5           24.     The cooling system of claim 23, wherein the evaporator section is provided on an angular surface of a housing for the docking station such that the condenser section is at a higher orientation than a substantial portion of the evaporator section.

10           25.     The cooling system of claim 23, wherein the condensed liquid traveling back to the evaporator section is aided by one or more of a wicking structure in the liquid-filled hollow structure and gravity.

15           26.     The cooling system of claim 23, further comprising a heat transfer material provided between the liquid-filled hollow structure and the portable computer docked in the docking station.

20           27.     The cooling system of claim 23, further comprising a biasing structure biasing the liquid-filled hollow structure towards the portable computer when the portable computer is docked in the docking station.

          28.     The cooling system of claim 23, wherein a size of the evaporator section is approximately equal to a size of a bottom surface of the portable computer docked in the docking station.

29. A docking station comprising:

a housing means for receiving a portable computer; and

a liquid-filled hollow structure means provided on a portion of the housing means, the liquid-filled hollow structure means being in thermally conductive relation to the portable computer when the portable computer is docked in the docking station for receiving heat transferred from the portable computer.

30. The docking station of claim 29, further comprising heat sink means in thermally conductive relation to the liquid filled hollow structure means, the heat sink means for dissipating the heat from the liquid-filled hollow structure means.